PERIODICAL
1.9, no.10

LIBRARY
FISH & WILDLIFE SERVICE
PACIFIC OCEANIC FISHERY
INVESTIGATIONS

NEW HAWAIIAN CRUSTACEA

By

CHARLES HOWARD EDMONDSON

BERNICE P. BISHOP MUSEUM
OCCASIONAL PAPERS
VOLUME IX, NUMBER 10

HONOLULU, HAWAII
PUBLISHED BY THE MUSEUM
DECEMBER, 1930

NEW HAWAIIAN CRUSTACEA

By Charles Howard Edmondson

NEW SPECIES OF PROCESSA

Two species of *Processa* have previously been recorded from Hawaiian waters. Rathbun [1] reported *P. processa* (Bate) from the Albatross collections and it was taken in shallow water from the leeward islands of Hawaii by the Tanager Expeditions in 1923. Dana [2] describes *P. hawaiiensis* (Dana) from local waters, probably Maui, although the locality is doubtful.

In *P. processa* the rostrum is as long as the eyes and the carpus of the second, right leg has about 65 segments. The rostrum of *P. hawaiiensis* is shorter than the eyes and the carpi of the second legs have 11 segments.

Among recent collections from Oahu there have appeared specimens of an apparently new species which bears closer relationship with *P. hawaiiensis* than with *P. processa* but is quite distinct from either.

Processa paucirostris, new species (fig. 1).

Rostrum shorter than eyes, straight, without keels, spines or hairs. Eyes large, the pigmented area occupying about one-half the bulbous portion. A sharp suborbital spine as long as the rostrum on the front border of the carapace. Pterygostomian border rounded. (See fig. 1, *a, b.*)

Basal segment of antennular peduncle longer than the last two segments combined. Antennal peduncle slightly shorter than antennular peduncle; scale exceeding the antennal peduncle in length and equal to the antennular peduncle. (See fig. 1, *c, d.*) Third maxilliped straight and stout. (See fig. 1, *e.*)

First leg on the right side chelate, smooth and unarmed; carpus one-half as long as the merus and equalling the palm in length. Fingers nearly as long as palm. (See fig. 1, *f.*) First leg on left side about as stout as the cheliped but terminating in a sharp claw. (See fig. 1, *g.*) Carpus of second leg on the right side with 18 segments; merus also segmented, eight faint transverse sutures being evident. (See fig. 1, *h.*) Fourth leg slender; propodus twice as long as dactylus, both bearing a few tufts of short bristles. (See fig. 1, *i.*)

Telson marked longitudinally by two nearly parallel crests bearing two pairs of short, sharp spines. Three small spines arm the posterior border of the telson. (See fig. 1, *j.*) Uropods slightly longer than telson, narrow with smooth surfaces. (See fig. 1, *k.*)

[1] Rathbun, Mary J., Brachyura and Macrura of the Hawaiian islands: U. S. Fish Comm., Bull., vol. 23, pt. 3, p. 912, 1906.

[2] Dana, J. D., Crustacea: United States Expl. Exped. [Wilkes], vol. 13, pt. 1, p. 538, 1852; pl. 33, fig. 7, *a-h,* 1855.

Type specimen a female; length from tip of rostrum to extremity of telson 17 mm. Type locality, Kahana Bay, Oahu, in shallow water. Bishop Museum collections No. 1533.

This species is quite distinct from *P. processa* in the brevity of

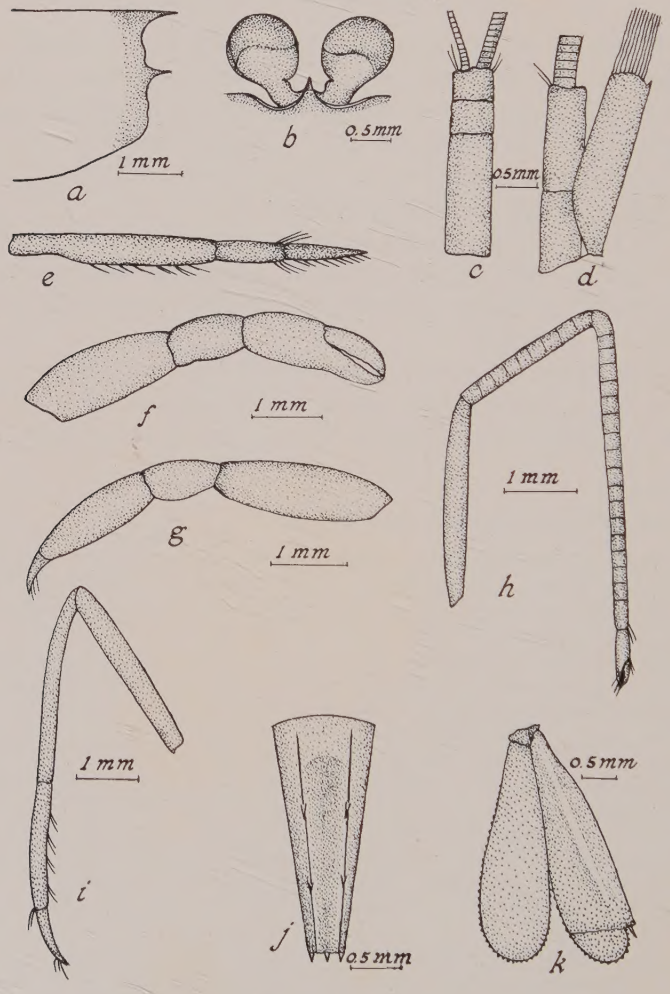

FIGURE 1.—*Processa paucirostris*, new species: *a*, front region of carapace, lateral view; *b*, rostrum and eyes, dorsal view; *c*, antennular peduncle; *d*, antennal peduncle; *e*, outer maxilliped; *f*, first leg, right side; *g*, first leg, left side; *h*, second leg, right side; *i*, fourth leg, left side; *j*, telson; *k*, uropod, right side.

the rostrum and in having fewer carpal segments of the second leg. From *P. hawaiiensis* it differs in the larger number of carpal segments in the second leg and in the rostrum being straight.

HAWAIIAN SPECIES OF JOUSSEAUMEA

Preceding the publication of the monograph on the Alpheidae of the Siboga Expedition in 1911, but 5 species of the genus *Jousseaumea* were known. Three of these, *J. serratidigitus, J. latirostris* and *J. cristatus,* were described by Coutière [3] from the Gulf of Aden; one, *J. trigona* Rathbun,[4] from Porto Rico, and one, *J. ortmanni* Coutière, from the coast of North America. Two species, *J. sibogae* and *J. hilarula* were described by de Man [5] from collections of the Siboga Expedition taken in the east Indian seas. Now the appearance of 2 additional species, apparently new, among the shallow water fauna of Hawaii is supporting evidence of the wide distribution of this genus of the snapping shrimps.

Jousseaumea mauiensis, new species (fig. 2).

Rostrum triangular, sharply pointed, a little longer than broad at base, slightly curved down, lower border narrowly rounded, upper surface carinate. Extra-corneal teeth triangular, directed straight forward, their medial border forming less than a right angle with the lateral border of the rostrum. Tip of rostrum extending beyond the posterior border of the third segment of the antennular peduncle. Second segment of the antennular peduncle as long as the visible portion of the first; third segment one and one-half times as long as the second. Stylocerite extending to the middle of the third antennular segment and slightly longer than the rostrum. (See fig. 2, *b.*) Carpocerite as long as antennular peduncle but shorter than the antennal scale; third segment of carpocerite as long as the combined length of the first and second. (See fig. 2, *c.*)

Carapace with pterygostomian angle rounded; surface smooth, scantily covered with short, yellow hairs. Telson a little less than twice as long as broad at base, which breadth is approximately twice that of the distal extremity. Two pairs of minute spinules are on the dorsal surface of the telson and the median notch of its posterior margin is a shallow, rounded depression. There are 2 spinules on either side of the median notch, the lateral ones being the shorter, and 3 feathered bristles medial of the spinules on either side of the mid-line. (See fig. 2, *g.*) The uropods extend slightly beyond the tip of the telson.

The large, right cheliped has a slender ischium and merus, both segments convex above and concave below, fitting closely about the curvature of the palm

[3] Coutière, Henri, Note sur quelques genres nouveaux . . .: Museum d'Hist. Nat., Bull., vol. 2, p. 382, Paris, 1896; vol. 3, p. 234, Paris, 1897.

[4] Rathbun, Mary J., Brachyura and Macrura of Porto Rico: U. S. Fish Comm., Bull., vol. 20, pt. 2, p. 111, 1900.

[5] de Man, J. G., Decapoda of the Siboga expedition, Alpheidae: pt. 2, pp. 158-162, 1911.

as the appendage is folded beneath the body. Palm twice as long as high, surface smooth; fingers slightly shorter than palm, strongly hooked at tip and distinctly toothed. (See fig. 2, *d*.) Second leg slender, proximal segment of carpus five times the length of the second segment; third and fourth segments equal in length, shorter than the second; fifth segment longer than second. (See fig. 2, *e*.) In type specimen the posterior border of propodus of third leg is armed with 5 spinules increasing in length toward the distal extremity;

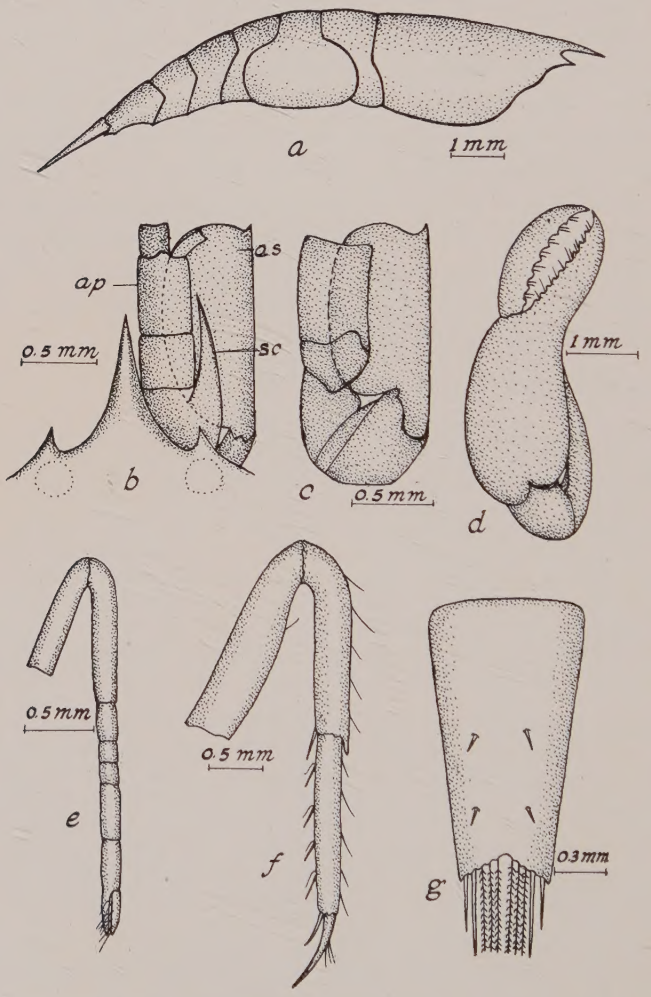

FIGURE 2.—*Jousseaumea mauiensis*, new species: *a*, carapace and abdomen from right side; *b*, frontal region, including antennular peduncle *ap*, stylocerite, *sc*, and antennal scale, *as*; *c*, antennal peduncle and scale; *d*, large (right) cheliped; *e*, second leg, right side; *f*, third leg, right side; *g*, telson.

dactylus long, curved. (See fig. 2, *f*.) The chief difference between the third and fourth legs is in the more slender and shorter merus and carpus of the latter appendage. The fifth leg is more slender than the fourth.

Type specimen a female; length from anterior tip of rostrum to posterior extremity of telson 13.75 mm. Type locality, island of Maui. Collected by Mrs. F. K. Skinner in shallow water among dead coral heads. Bishop Museum collections No. 2612.

The species from Maui differs from those described from the Gulf of Aden in having but 2 spinules on either side of the median notch of the posterior border of the telson instead of 4. In the number of these spinules *J. mauiensis* resembles the two species described from the Siboga collections but differs from each in the form of the median, posterior notch of the telson and in details of the appendages. In both *J. sibogae* and *J. hilarula* the posterior notch of the telson is trapeziform and much deeper than in *mauiensis*.

The front of the carapace of the Maui specimen more nearly resembles that of *J. latirostris* than other described species, the angle between the rostrum and the extra-corneal spine, however, being less acute in *J. mauiensis* because of the greater relative breadth of the base of the rostrum in *J. latirostris*.

In *J. mauiensis* the scale of the antenna exceeds in length the peduncle of the antennule while in *J. sibogae* it equals it and in *J. hilarula* it is much shorter. There is also a heavier armature of spinules and bristles on the walking legs in *J. mauiensis* than in either of the species of the Siboga Expedition.

With the type specimen a paratype was collected and other specimens have been taken from the reefs of Oahu in crevices of dead coral heads. Living specimens are orange-yellow in color but soon fade to white in alcohol. On Oahu the species has always been found associated with a large, flesh-colored polychaetous worm.

Jousseaumea brevirostris, new species (fig. 3).

Rostrum sharp pointed, straight, short, reaching but to the distal extremity of the first antennular segment, upper surface with a carina which extends half the length of the carapace. Extra-corneal teeth half as long as the rostrum and separated from its base by wide, shallow depressions. (See fig. 3, *b*.)

Second and third antennular segments equal in length and each equal to the exposed portion of the first. Stylocerite extends to the base of the third antennular segment. Carpocerite as long as stylocerite but shorter than the antennal scale, which extends slightly beyond the antennular peduncle. (See fig. 3, *b, c*.)

Carapace with surface smooth, covered with fine, short, yellow hairs; pterygostomian border rounded. (See fig. 3, *a*.) Telson with two pairs of spinelets on dorsal surface; posterior border with a deep, narrow notch provided on either side with three feathered bristles and two spinules, the outer one being the shorter. (See fig. 3, *g*.)

The large, right cheliped is usually folded beneath the body, the slender

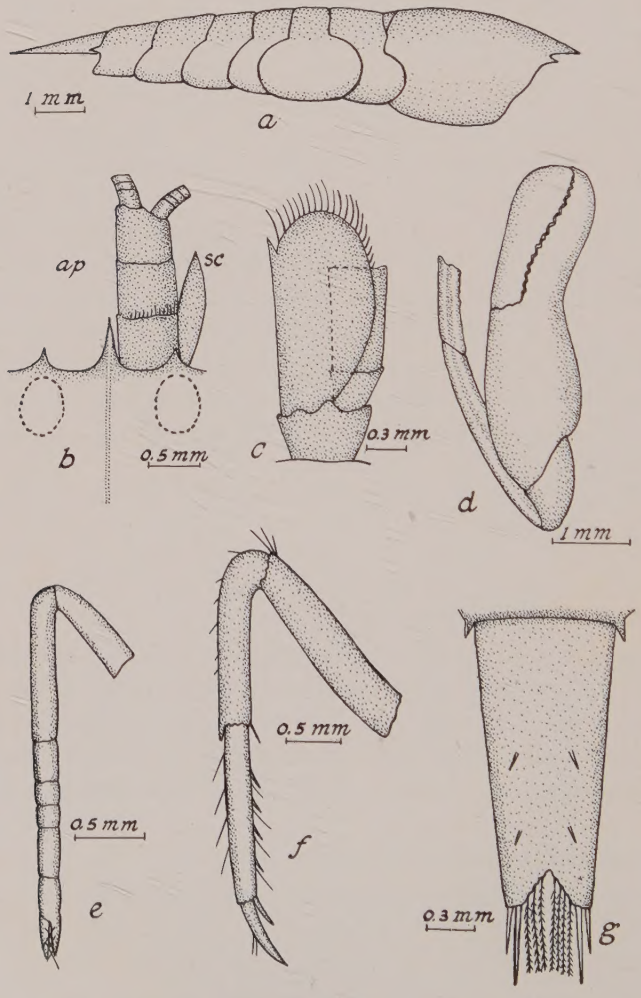

FIGURE 3.—*Jousseaumea brevirostris*, new species: *a*, carapace and abdomen from right side; *b*, frontal region including antennular peduncle, *ap*, and stylocerite, *sc*; *c*, antenal peduncle and scale; *d*, large (right) cheliped; *e*, second (left) leg; *f*, third (left) leg; *g*, telson.

ischium and merus being concave and fitting closely about the palm in the flexed condition. Palm smooth, fingers deep, thin, slightly bent down and strongly toothed. (See fig. 3, *d.*) Basal segment of carpus of slender second leg about four times the length of the second segment, which is shorter than the fifth; third and fourth segments equal (See fig. 3, *e.*) Third, fourth and fifth legs of similar form but becoming progressively shorter and more slender; propodus in each armed on the posterior border with spinelets; dactylus long and sharp. (See fig. 3, *f.*)

Type specimen a female; length from anterior tip of rostrum to posterior extremity of telson 14 mm. Type locality, Waikiki reef, Oahu, in shallow water in a dead coral colony. Bishop Museum collections No. 3335.

Jousseaumea brevirostris differs from *J. mauiensis,* chiefly in the character of the rostrum, extra-corneal teeth and the notch of the posterior border of the telson. It more nearly resembles *J. sibogae* de Man and *J. hilarula* de Man in the form of the notch of the telson, but the short rostrum with the extra-corneal teeth widely separated seems to be a distinctive feature of this species. As in *J. mauiensis* it is bright-yellow in life. A male specimen, 11 mm. in length, was taken at Kahala, Oahu.

NEW SPECIES OF AXIOPSIS

According to de Man's classification of the Axiidae, the Hawaiian species recognized up to this time are as follows:

Axius (*Eiconaxius*) *asper* (Rathbun [6]); *Axius* (*Paraxius*) *tridens* (Rathbun [6]); *Axiopsis* (*Axiopsis*) *pailoloensis* (Rathbun [6]); *Axiopsis* (*Axiopsis*) *rudis* (Rathbun [6]); *Axiopsis* (*Axiopsis*) *spinosissima* (Rathbun [6]); and *Axiopsis* (*Axiopsis*) *serratifrons* (A. M. Edwards [7]). Of these *asper, tridens* and *rudis* are known only from dredged material in Hawaiian waters, while *spinosissima* and *serratifrons* have wider-known ranges and in some localities occur on reefs close to shore. In Hawaii, *Axiopsis spinosissima* has been taken from the stomach of a common food fish (*opakapaka*), and also dredged at 23 to 24 fathoms on the south coast of Molokai. No recent records of *Axiopsis serratifrons* from Hawaii are known, but it was reported from this locality by A. M. Edwards in 1873.

[6] Rathbun, Mary J., Brachyura and Macrura of the Hawaiian islands: U. S. Fish Comm., Bull., vol. 23, pt. 3, pp. 893-896, 1906.

[7] Edwards, A. M., Description de quelques Crustacés, nouveaux ou peu connus: Jour. Museum Godeffroy, vol. 4, p. 87, 2, fig. 6, 1873.

There are specimens in Bishop Museum from Howland, Christmas, and Fanning islands.

Three specimens of an apparently new species of *Axiopsis* were collected in 1927 at Pearl and Hermes Reef.

Axiopsis (Axiopsis) irregularis, new species (Plate 1, *A;* fig. 4).

Rostrum sharp pointed, longer than broad at base and reaching to the distal end of the second segment of the antennular peduncle; lower surface with a low keel, upper surface concave and bearing in the mid-line a dentate ridge terminating the median row of teeth of the carapace.

Front portion of upper surface of the carapace marked by five longitudinal rows of teeth, the median one consisting of nine teeth exclusive of a ridge which extends forward on the rostrum. Sub-median row on the left side with four teeth and that on the right side with five teeth. Lateral rows each with four teeth. The posterior teeth in the sub-median and lateral rows terminate smooth, elongated ridges. (See fig. 4, *a.*)

Cervical groove, without teeth but bordered with hairs, reaching the front border of the carapace and terminating just above the pterygostomian tooth. Orbit of eye shallow; a small tooth on the front border of carapace at the base of antennal peduncle and a large one at the pterygostomian angle.

Basal segment of antennular peduncle concave dorsally, its length visible from above subequal to the combined length of the second and third segments. (See fig. 4, *c.*) Distal extremity of second segment of antennal peduncle on a level with the extreme end of the antennular peduncle. Antennal thorns long and large, the longer one extending almost to the extremity of the second segment of the peduncle. (See fig. 4, *d.*) Eyes half as long as rostrum, pigmented. Surface of carapace on sides and posterior to cervical groove bearing a few scattered yellow hairs.

Telson slightly longer than broad, lateral borders parallel, each with three teeth, the posterior one very minute. Posterior border of telson rounded with a double margin, the dorsal one bearing three minute teeth toward the lateral side and some hairs medially; ventral margin fringed with long hairs. A prominent tooth marks the mid-line of the posterior border of the telson. Upper surface of telson with a medial concavity in the posterior two-thirds of its length and bearing two pairs of strong spines, the anterior pair being larger and closer together. Three tufts of long hairs are carried on the upper surface of the telson, one originating between the anterior pair of spines and one on each side more lateral and anterior in position. The posterior border of the sixth segment of the abdomen gives rise to three tufts of long hairs which extend backward over the telson. (See fig. 4, *g.*)

The uropods are slightly longer than the telson; exopodite armed with strong teeth on the outer border and bearing four teeth on a longitudinal ridge on the upper surface. Five strong teeth mark a similar ridge on the endopodite. (See fig. 4, *j.*)

In the large cheliped, which is the left in the type specimen, the ischium is serrated above and bears three teeth below, the larger being distal; lower border of merus serrated and carrying five prominent teeth; upper border smooth except for one tooth about the middle of the distal half. (See fig. 4, *f.*) The carpus is smooth; hand elongate, with palm more than twice as long as deep; fingers more than half as long as palm. Palm without spines or tubercles,

upper border defined by a rounded crest, lower border marked by a similar but less prominent ridge; tufts of fine yellow hairs are arranged in longitudinal rows on both outer and inner surfaces. (See fig. 4, *e*.)

Carpus and palm of second leg subequal in length; ischium and merus bear teeth on lower borders, and the segments are fringed below with long hairs. (See fig. 4, *h*.) Third leg longer than second; a tooth is carried at the lower

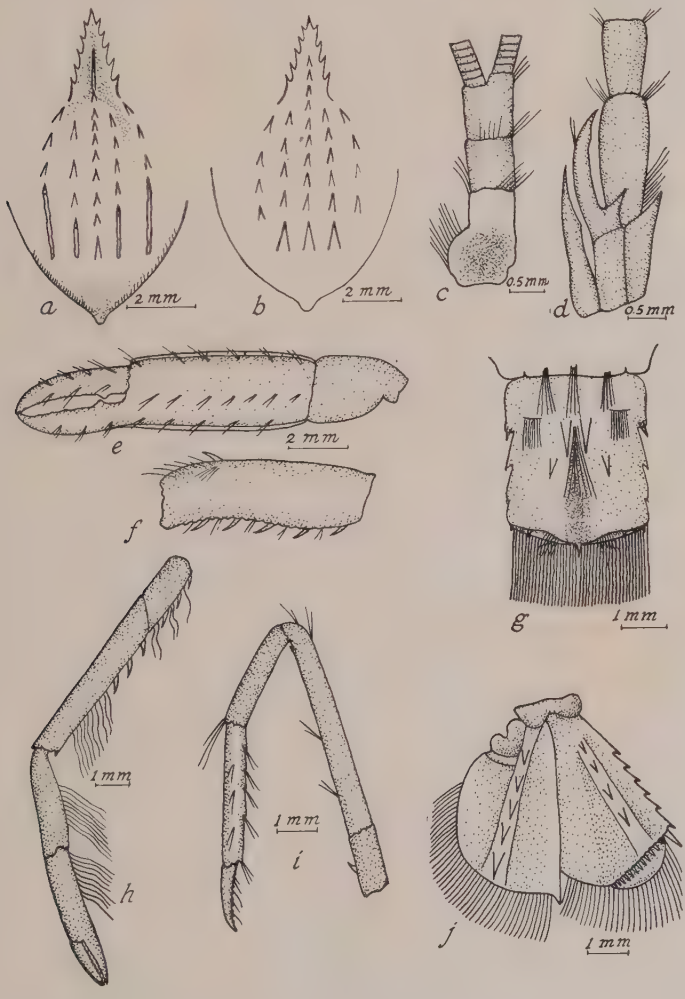

FIGURE 4.—*Axiopsis* (Axiopsis) *irregularis*, new species: *a*, dorsal view of gastric region of carapace and of rostrum; type specimen; *b*, same of cotype specimen; *c*, antennular peduncle; *d*, antennal peduncle and thorns; *e*, large cheliped, hand and wrist, left side; *f*, arm of left cheliped; *g*, telson; *h*, second (left) leg; *i*, third (left) leg; *j*, uropod, right side.

distal extremity of the merus; lower border of propodus bears tufts of bristles and that of the dactylus is covered with spinules (See fig. 4, *i*.) The fourth and fifth legs are shorter and more slender than the third.

Type specimen a female 34 mm. in length from the anterior tip of the rostrum to the posterior extremity of the telson. Type locality, Pearl and Hermes Reef, in shallow water. Collected by T. T. Dranga, 1927. Bishop Museum collections No. 3336.

This species seems to be closely related to *Axiopsis* (*Axiopsis*) *consobrina* de Man [8] collected by the Siboga Expedition in the east Indian seas at moderate depths. It differs from *A. consobrina,* however, in the armature of the gastric region, in the extent of the cervical groove and in the posterior border of the telson. In *A. consobrina* there is a larger number of teeth in each of the five rows on the dorsal region of the carapace, the median row having thirteen, the sub-median rows seven or eight, and the lateral rows nine each. The lateral portions of the cervical groove in *A. consobrina* do not reach the anterior border of the carapace, and the posterior border of the telson is more rounded than in the new species here described.

The features of the chelipeds correspond closely in the two species except for the presence of small tubercles on the outer face of the palm of *A. consobrina.*

The species *A. serratifrons* differs from this new form in having numerous teeth between the carinae on the gastric region and *A. spinosissima* differs in having five rows of teeth on the gastric region and in the cervical groove being bordered with spines.

Considerable variation in the number of teeth of the gastric and rostral areas is seen among the three specimens collected at Pearl and Hermes Reef. A cotype (fig. 4, *b*) differs from the type specimen in lacking the smooth carinae at the base of the posterior teeth of the sub-median and lateral rows, but, instead, the posterior teeth of the median and sub-median rows are greatly enlarged. In this cotype also the teeth of the median row extend forward on the rostrum, the two anterior ones taking the place of the smooth carina in the type specimen. Four teeth occupy the right border of the rostrum and five the left in the cotype. These variations are responsible for the specific name *irregularis* by which the new form is designated.

[8] de Man, J. G., Decapoda of the Siboga expedition; Axiidae: pt. 6, p. 80, fig. 13-13 *c*, 1925.

NEW GENUS AND SPECIES OF PORTUNIDAE

FAMILY PORTUNIDAE

SUBFAMILY CAPHRYINAE

Coelocarcinus, new genus.

Carapace subcircular, the antero-lateral regions deeply concave; gastric, cardiac and post-cardiac areas elevated; front prominent, slightly turned down, concave dorsally. Antero-lateral border curved upward with lobes separated by slight incisions. Basal antennal joint narrow, elongated, the flagellum lying within the orbit. Ischium of outer maxilliped elongated, merus short; exopodite as long as ischium and without a flagellum. Chelipeds longer and stouter than legs. Last pair of legs normal in position; propodus and dactylus developed into rounded, foliaceous swimming paddles; dactylus without claw.

This new genus is apparently more closely allied to *Lissocarcinus*[9] than to other genera of the subfamily. It differs from *Lissocarcinus,* however, in the character of the surface of the carapace, in the form of the basal joint of the antenna and in the outer maxilliped. It is distinguished from *Sphaerocarcinus*[10] and *Caphrya*[10] by the last pair of legs being attached on the same level as the preceding pair, and in having both propodus and dactylus greatly expanded. In *Spaerocarcinus* and *Caphrya* the last legs are subdorsal in position and are not much different from the preceding ones.

Coelocarcinus foliatus, new species (Pl. 1, *B;* fig. 5).

Carapace subcircular, length and breadth approximately equal; branchial region broadly and deeply concave. Gastric region elevated with a raised ridge continuing in the medial area to the posterior border of the carapace. Of this elevated ridge the cardiac region is the highest portion.

Front extending prominently in front of the eyes, slightly curved downward, tip and dorsal surface with a broad, deep concavity. Supraorbital angles not distinguished from the front. Measured between the eyes the breadth of the front is approximately one-fourth the greatest breadth of the carapace. Antero-lateral borders sharply turned upward, which, with the concave branchial regions, give the carapace a cupped appearance when viewed dorsally. Antero-lateral borders cut into four low lobes separated by slight incisions. (See fig. 5, *a.*) These lobes resemble, in a general way, those of *Lissocarcinus orbicularis* Dana.

Dorsal surface of carapace, although smooth to the unaided eye, under a strong lens is seen to be closely set with very minute tubercles of unequal size.

[9] Dana, J. D., Crustacea: United States Expl. Exped. [Wilkes], vol. 13, pt. 1, p. 288, 1852; pl. 18, fig. 1 *a-e,* 1855.

[10] Alcock, Alfred., Materials for a carcinological fauna of India. No. 4, The Brachyura Cyclometopa: Asiatic Soc. Bengal, Jour., vol. 68, p. 8, 1899.

Orbits small, their greatest diameter approximately one-fourth the width of the front between the eyes; an inconspicuous notch in the upper border; inner angle of lower margin a blunt, prominent tooth. Basal segment of antenna narrow, resting against the relatively large basal segment of the antennule, but not touching the front. The antennal flagellum lies in the orbit. (See fig. 5, *b*.)

The ischium of the third maxilliped is long and straight; merus less than one-half of the length of the ischium; exopodite large and pointed, extending beyond the distal extremity of the ischium and without a flagellum. (See fig. 5, *d*.) Telson of type specimen having third, fourth and fifth segments fused together. (See fig. 5, *e*.)

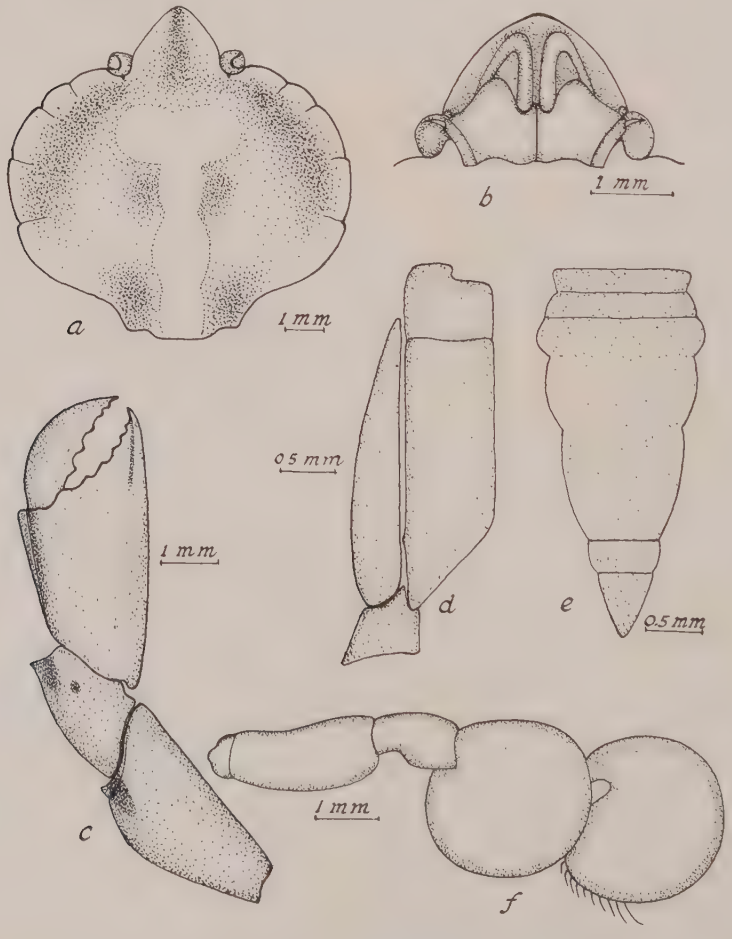

FIGURE 5.—*Coelocarcinus foliatus*, new species: *a*, dorsal surface of carapace; *b*, ventral surface of front; *c*, right cheliped; *d*, outer maxilliped; *e*, telson; *f*, fifth leg.

Chelipeds longer than carapace and longer and stouter than either of the other legs. Segments of chelipeds smooth; merus with an incomplete fringe of hairs along the anterior border; wrist stout, a blunt lobe at the inner angle. Palm increasing in height distally; outer surface convex, inner face concave, upper border with a distinct crest. Fingers stout, the cutting edges toothed and in contact when closed. Inner concave surfaces of both chelipeds covered with short hairs. (See fig. 5, *c*.)

Second, third and fourth pairs of legs progressively smaller and shorter but otherwise similar; segments slightly flattened, smooth; dactylus long, stout and fluted as in *Lissocarcinus*. Fifth leg (fig. 5, *f*) equalling the fourth in length and modified into a swimming appendage. Propodus and dactylus each expanded into a thin, circular, foliaceous lobe, the propodus being slightly the larger. The dactylus is without a claw but has a few hairs fringing the posterior margin. It may be folded against the side of the propodus and completely concealed.

Holotype, a male; length of carapace 9 millimeters, breadth subequal to length. Type locality, Waikiki beach, Oahu, in the sand near shore. Bishop Museum collections No. 2664.

NEW SPECIES OF PALICUS

Palicus maculatus, new species (Pl. 1, *C;* fig. 6).

Carapace convex in both directions and marked by elevations and ridges separated by broad, shallow grooves. The entire surface of carapace, including the grooves, ornamented by low tubercles of unequal size. A short, delicate pile interspersed among the tubercles.

Front deflexed, anterior margin with four rounded lobes separated by shallow depressions, the median pair of lobes being more prominent than the lateral ones. Supraorbital border tumid, interrupted by two deep fissures. A broad depression posterior to each orbit is marked by a deep crimson color in the living specimen. (See Pl. 1, *C*.)

Antero-lateral border of carapace with five teeth, including the small outer orbital lobe. The second of the five teeth is a rounded lobe slightly larger than the outer orbital one from which it is separated by a small groove. Third tooth triangular, more prominent than the second. Fourth tooth broadly triangular and largest of all. The fifth tooth is inconspicuous, terminating a low ridge extending posteriorly from the base of the fourth. (See fig. 6, *a*.)

Eye-stalk short, thick with a rounded tubercle and a fringe of short hairs above. Outer half of orbit fringed with stiff hairs. Suborbital border with two fissures. The basal segment of the antenna joins the supraorbital border, excluding the flagellum from the orbit. Antero-medial border of the ischium of the external maxilliped extending beyond the articulation of the merus; merus deeply excavated for the insertion of the palp; exopodite nearly as long as combined length of ischium and merus; flagellum slender. (See fig. 6, *d*.)

Abdomen of the type specimen of seven segments and covered, as is the general under surface of the animal, with low tubercles like those of the upper surface of the carapace. The seventh segment is elongate, rounded at the tip and smoother than the others.

Chelipeds unequal, the right being the larger. The outer surface of both

chelipeds covered by tubercles of nearly uniform size, those of the carpus being somewhat larger and more irregular. Near the upper border of the outer surface of each palm is an elongate, swollen area. Fingers shorter than the palm, pointed and overlapping at the tip when closed. (See fig. 6, *b, c.*) Second, third and fourth legs somewhat similar in form, the second being the smallest of these and having a narrower and smoother merus. Carpus and propodus of each grooved on the lateral face, the channels carrying fine hairs; lower border of propodus with a series of small spines and upper and lower borders fringed with hairs; dactyli stout. (See fig. 6, *e, f.*) Fifth leg slender, roughened by tubercles. (See fig. 6, *g.*) In the living specimen a broad crimson band of color crosses the propodi of the chelipeds and walking legs, becoming progressively less intense toward the fifth leg. (See Pl. 1, *C.*)

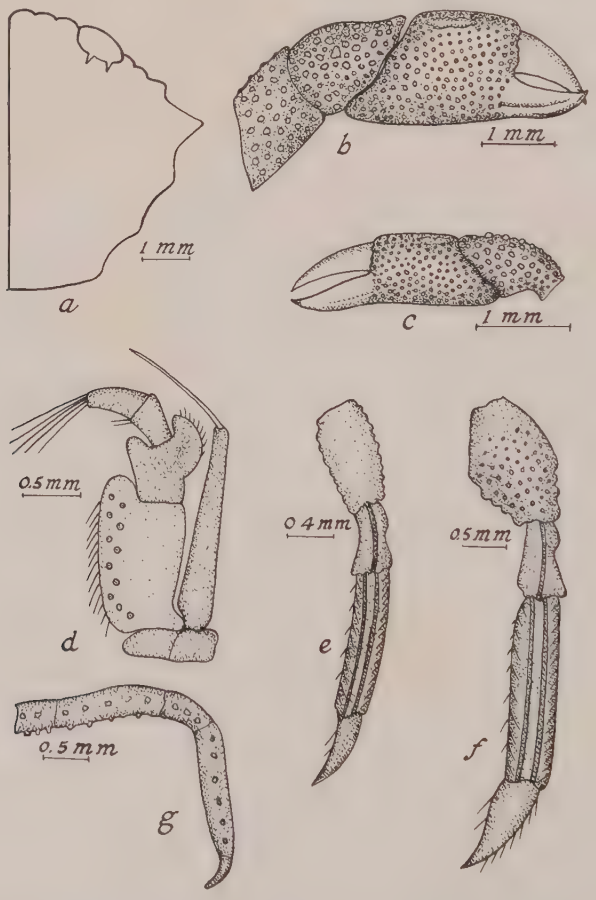

FIGURE 6.—*Palicus maculatus*, new species: *a*, outline of right half of carapace; *b*, large (right) cheliped; *c*, small (left) cheliped; *d*, outer maxilliped; *e*, second leg, right side; *f*, third leg, right side; *g*, fifth leg, right side.

Type specimen a male; length of carapace 6 mm., breadth 9 mm., front 3 mm. Type locality, Waikiki reef, Oahu, in shallow water. Bishop Museum collections No. 3337.

This species, collected among the branches of a clump of coralline algae on Waikiki reef, Oahu, differs from *Palicus tuberculatus* Edmondson,[11] specimens of which have been taken in the same vicinity, in the teeth of the antero-lateral border of the carapace and in the chelipeds. In *P. tuberculatus* the fifth tooth of the antero-lateral border is as long as the fourth, but narrower. In *P. maculatus* the tubercles of the upper and lower surfaces of the animal are less prominent than in *P. tuberculatus,* the fingers of the chelipeds are less deflexed and the inner borders of the hands are free from hair.

This new species is distinguished from *P. fisheri* and *P. oahuensis,* described by Rathbun [12] from Hawaiian waters, by features of the carapace and chelipeds. The species *oahuensis* was collected on Honolulu reef and in moderately deep water off the south coast of Oahu. The species *fisheri* has not been taken in shallow water.

Although the crimson spots on the carapace and appendages of *P. maculatus* are apparently distinctive color markings in the living specimen, they are not permanent features, but fade almost completely after the specimen is preserved in alcohol for six months.

---

[11] Edmondson, C. H., Marine Zoology of tropical central Pacific, Crustacea: B. P. Bishop Mus., Bull., 27, p. 57, pl. 4, fig. 8, *e-g*, 1925.

[12] Rathbun, Mary J., Brachyura and Macrura of the Hawaiian islands: U. S. Fish Comm., Bull., vol. 23, pt. 3, pp. 835-837, 1906.

A

B

C

PLATE 1.—Hawaiian Crustacea: *A, Axiopsis (Axiopsis) irregularis,* new species, × 1.6; *B, Coelocarcinus foliatus,* new species, × 3; *C, Palicus maculatus,* new species, × 3.